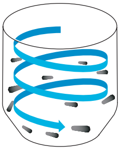
dyson

service manual DC 19 DC 20

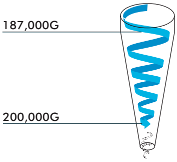
Issued 03/07

Root[12] Cyclone™ Technology



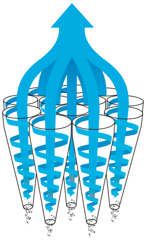
Spinning air creates centrifugal force.

By making the air stream spin, dirt and debris are subjected to centrifugal force. The dirt and debris are thrown out of the airflow.



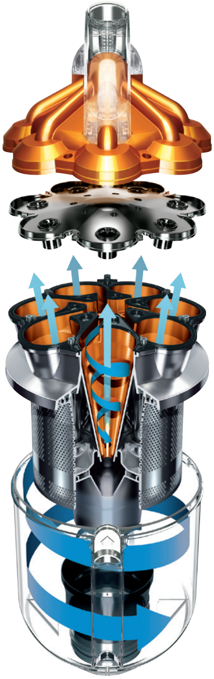
Higher speed gives higher centrifugal force.

A cone shape speeds up the spinning air to create even greater centrifugal forces. This removes microscopic dust particles out of the airflow. For example, Formula 1 racing drivers can be subjected to 5 G-forces. DC19 and DC20 G-forces are 40,000 times greater.



More cyclones create higher suction power.

By spreading high volumes of air through many cyclones, Root[12] Cyclone™ technology has even higher suction power. This means it picks up even more dust.



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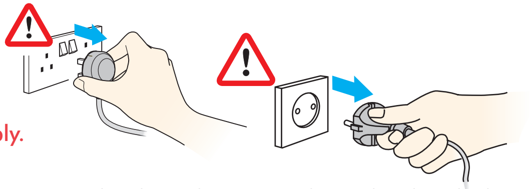
Introduction

This manual is written specifically for dyson trained engineers and covers the DC19 and DC20 range. The service instructions assume that the engineer has the approved tools and test equipment with them.

Electrical safety testing

Ensure that at all times during the repair and testing of products that customers, pets, children and you are not exposed to any Live electrical supply.

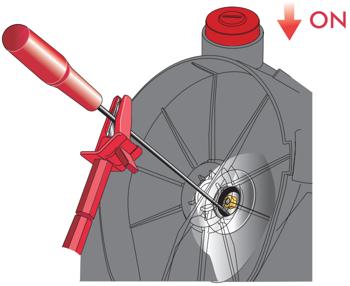


Socket polarity check

Test the socket outlet using the 3-pin test unit to ensure that the socket is correctly wired and earthed.

Insulation test

The following test must be performed prior to and upon completion of all repairs to Dyson floorcare products and before any functional checks. You must ensure that a full visual inspection of the product is completed prior to repair. This is vital to avoid any possibilities of personal injury to the end user.



The Seaward Primetest 200 or equivalent should be used to test the electrical insulation of a Class II appliance; it indicates any electrical leakage.

Procedure for use:

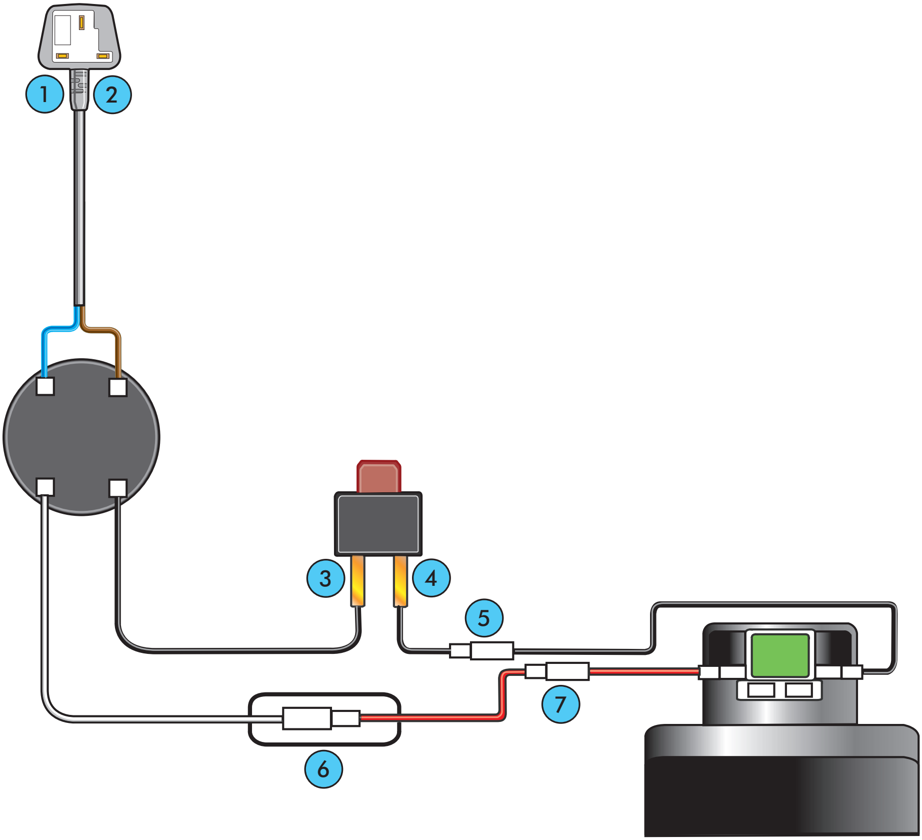
1. Remove the pre-filter cover and pre-filter on the product.
2. Connect the red lead from the tester to the shaft of screwdriver via a crocodile clip.
3. Locate the screwdriver through the filter housing grille, onto the motor fan.
4. Plug the product directly into the tester.
5. Ensure the mains switch of the product to be tested is in the ON position.
6. Set the range selector to the double insulated symbol.
7. Press the 'test' button on the tester. Record the reading.

A reading of > 2MΩ is accepted. 2MΩ is the minimal legal requirement. A reading of below 2MΩ is not considered safe and further investigation and rectification must be made before the product is used. The following components must be visually inspected:

- Cable rewind assembly, both internal and external
- Switch
- Motor
- Carbon build up in the motor housing

If you cannot repair a product with an insulation test reading of below 2MΩ you must inform the customer that it is unsafe to use. Please inform the customer of the required actions to repair the product (including the charge structure). If the product is left un-repaired please indicate on your paperwork/hand held device that the product is electrically unsafe!

Circuit overview



Resistance values

- Complete circuit (points 1-2) = 7Ω approx.

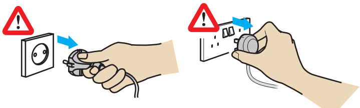
- Cable rewind:
  Live (points 1-3) = 1Ω max.
  Neutral (points 2-6) = 1Ω max.

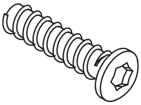
- Switch (points 3-4) = 1Ω max.

- Motor assy (points 5-7) = 7Ω approx.

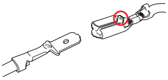
General notes

Before attempting any repairs it is vital to ensure the product is totally isolated from the mains supply and that accidental reconnection cannot occur.



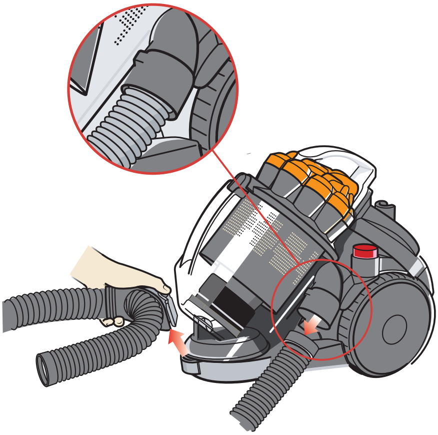


All screws used in DC19 and DC20 are M3.5 x 16 Torx T-15 unless otherwise stated.

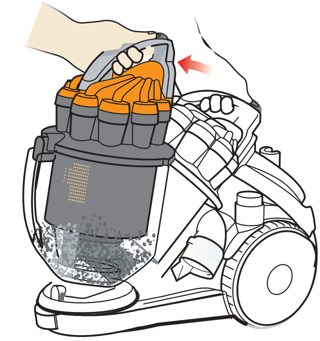


Some female terminal clips used in DC19 and DC20 contain a lock mechanism. The mechanism will need to be pressed before separation from the male terminal can occur.

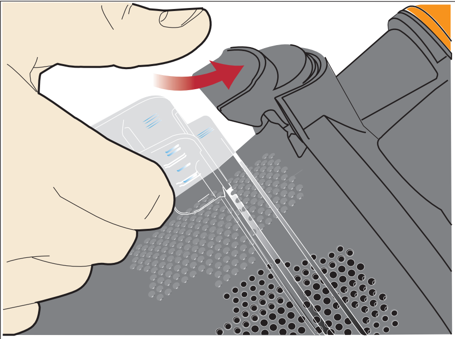
Main body - dismantle



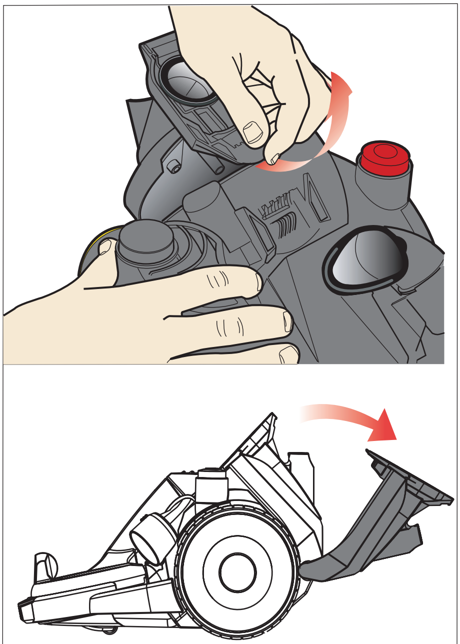
① Unclip the wand assembly from the side of the cyclone assembly and unwrap the hose assembly from around the product (DC20 only). Remove the end of the hose from the inlet on the side of the product. Unclip the retaining bracket and remove from the front of the machine.



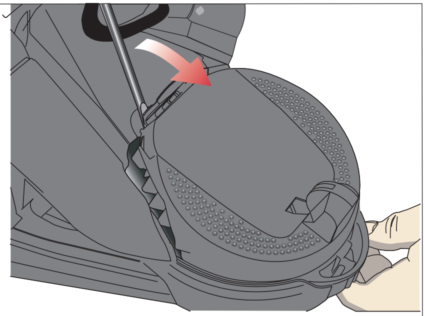
② Press the release catch to remove the cyclone and bin assembly from the product.



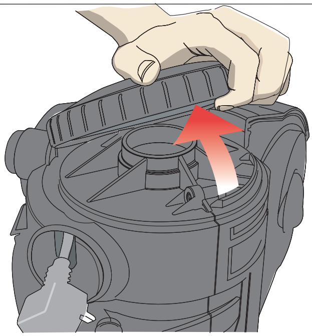
③ If necessary the bin can be removed from the cyclone assembly by pressing the bin release catch.



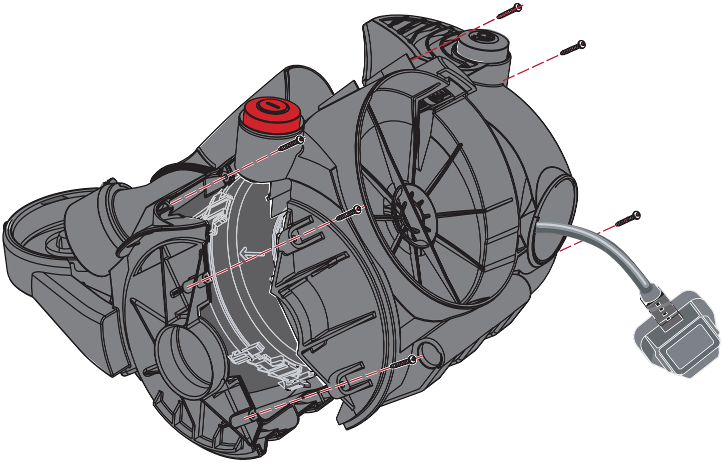
④ Unclip the pre-filter cover from the locating point on the upper motor cover (UMC). Pull the pre-filter cover away from the machine until it releases from the hinge points. Remove the pre-filter assembly.



⑤ Unclip the post filter cover catch using a flat bladed screwdriver. Carefully remove the cover and filter.

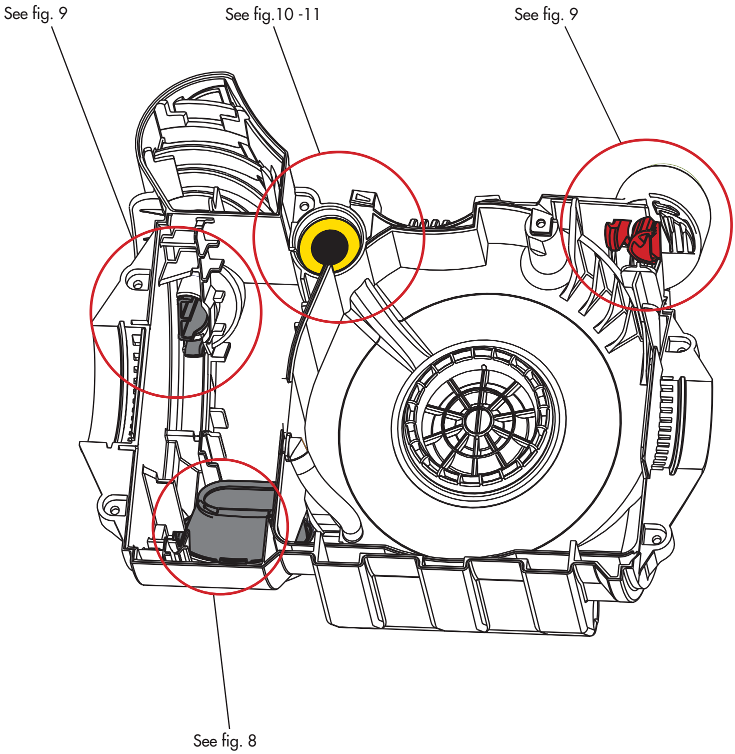


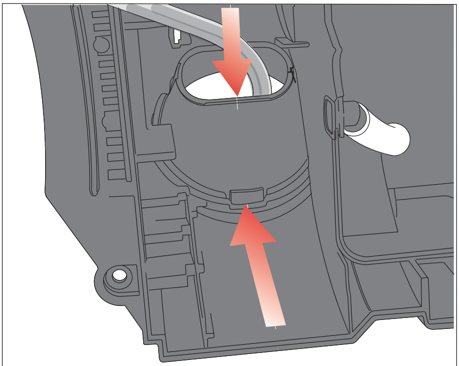
⑥ Firmly pull the wheels away from the main body.



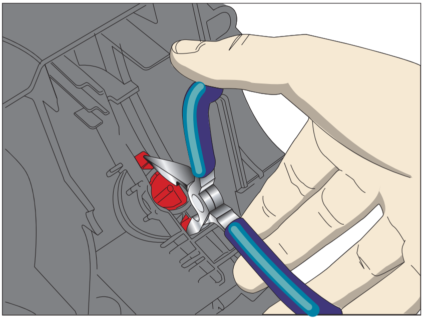
⑦ Remove the six screws from the UMC. Pull the cable out slightly and lift the UMC off the Lower Motor Cover (LMC).

UNDERSIDE VIEW OF THE UMC IDENTIFYING THE POSITIONS OF RELEVANT COMPONENTS

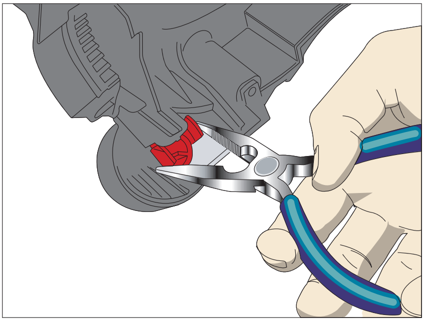


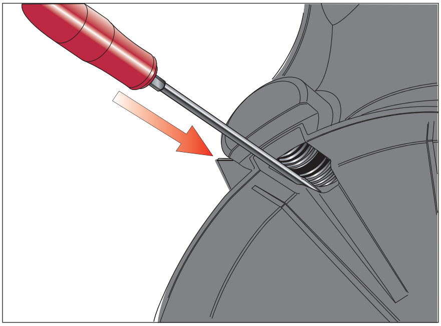


8 Press the lower retaining clip from inside the UMC to remove the cable collar.
Separate the collar from the cable.

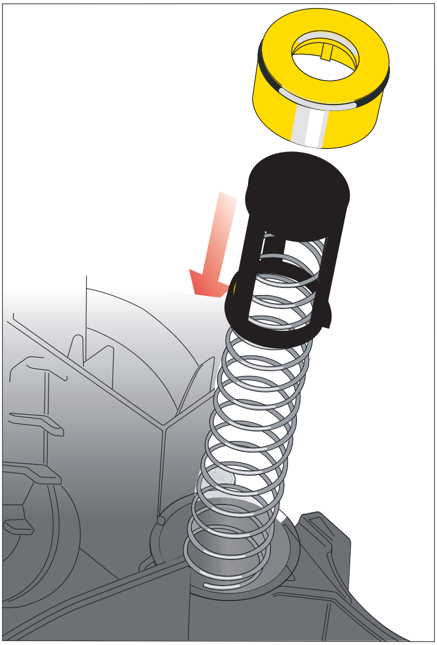


9 To remove either actuator or spring, unclip from the inside of the UMC with the aid of a pair of long nosed pliers.
To refit, locate the springs, then actuators from the outside of the UMC, and firmly snap in.

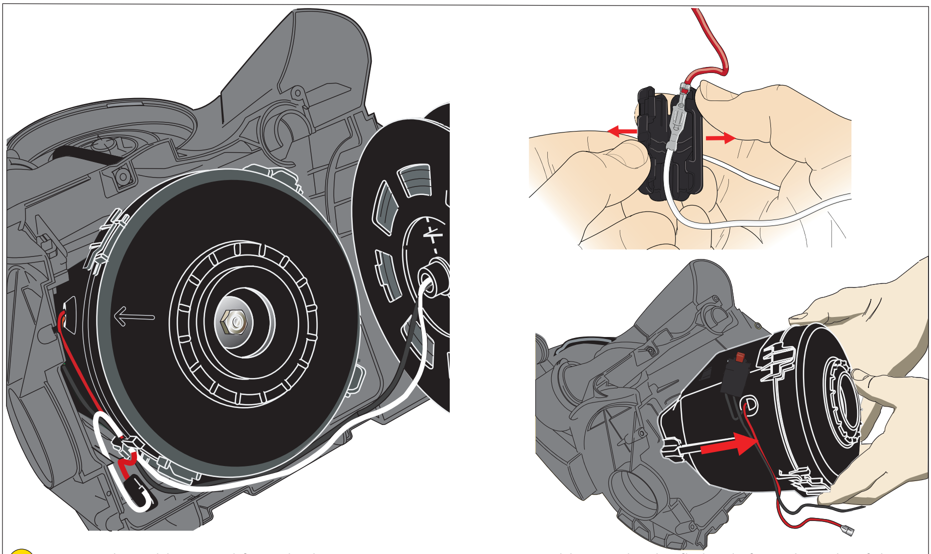




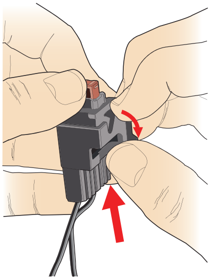
10 To remove the bleed valve, carefully push out from the outside of the UMC using a thin, flat bladed screwdriver.



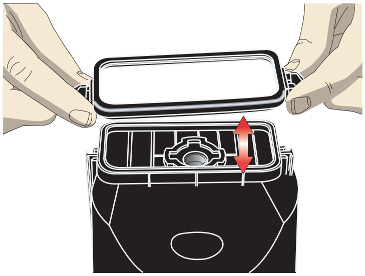
11 To replace the bleed valve, assemble in the above order.



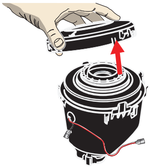
⑫ Remove the cable rewind from the lower motor cover (LMC) assembly. Unclip the fly leads from the side of the motor bucket. Unclip the connector insulator, and the wires within from each other. Pull the motor bucket out of the LMC assembly.



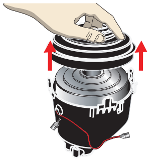
⑬ Release the switch from the switch holder. Unclip both wires from the switch.



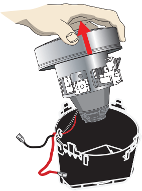
⑭ The motor bucket mount can be replaced if necessary as shown.



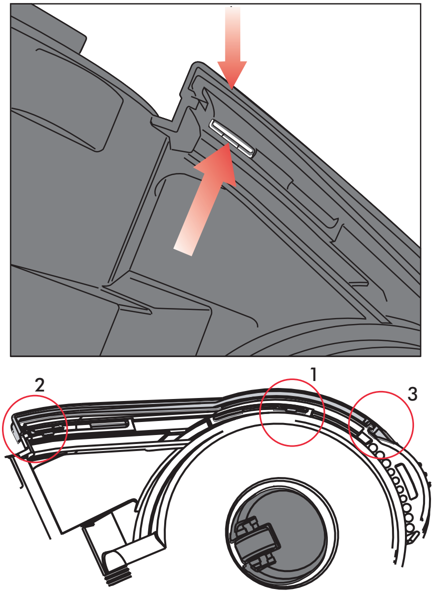
⑮ Firmly release the four retaining clips on the side of the motor bucket. Lift off the motor bucket top.



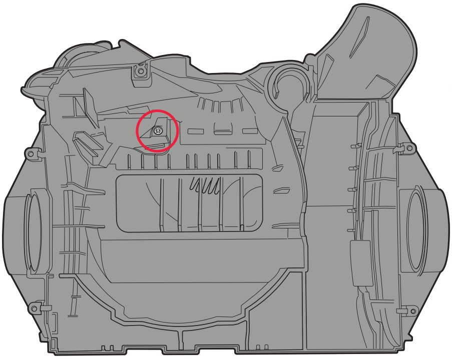
⑯ Lift the fancase seal off the base of the motor.



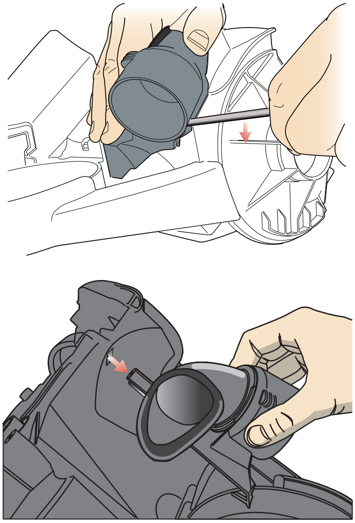
⑰ Lift the motor, motor plate and mount out of the bucket. Unclip the wiring harness from the motor. Release the wiring harness from the bucket if necessary.



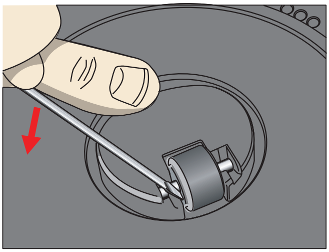
⑱ To remove the bumper strip, unclip the retainers and forcefully push the bumper strip away from the LMC. To replace, snap clips back in sequence shown.



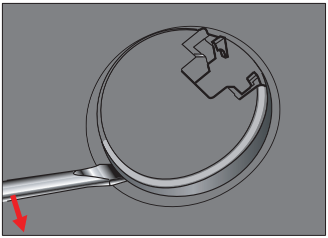
⑲ To replace the cyclone inlet assembly, undo the screw from the inside of the LMC assembly.



⑳ Prise a thin, flat bladed screwdriver under the cyclone inlet. Then slide the inlet off the LMC assembly.
To refit, slide onto the LMC assembly and refit the screw.

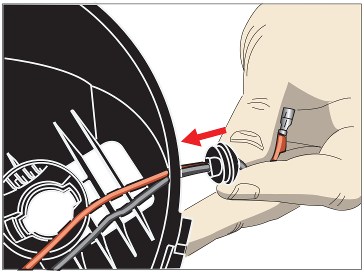


㉑ Prise the castor wheel and axle out of the castor body using a thin, flat bladed screwdriver.
To refit, clip into the castor body.

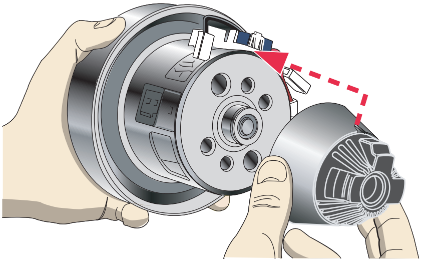


㉒ Prise the castor body away from the LMC using a large flat bladed screwdriver.
To refit, push firmly onto the castor spigot.

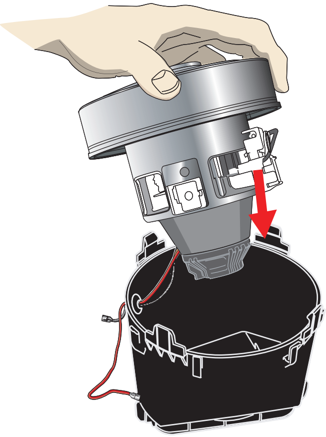
Main body - assemble



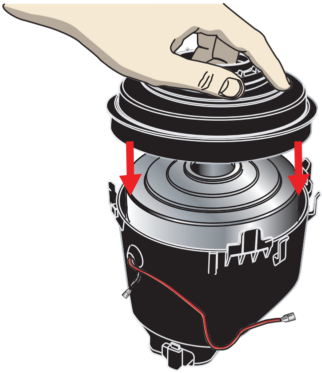
㉓ Refit the wiring harness into the bucket if previously removed. Ensure the grommet is adequately sealed.



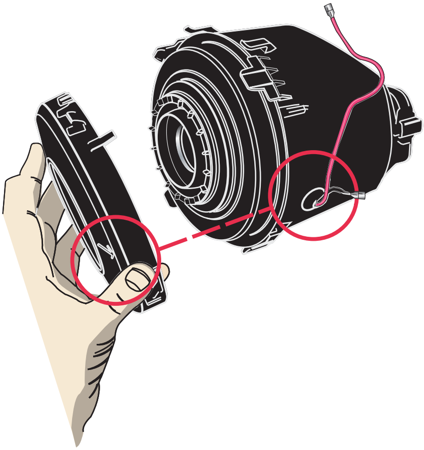
㉔ Fit the motor mount onto the motor plate. Align the motor plate and mount onto the motor as shown.



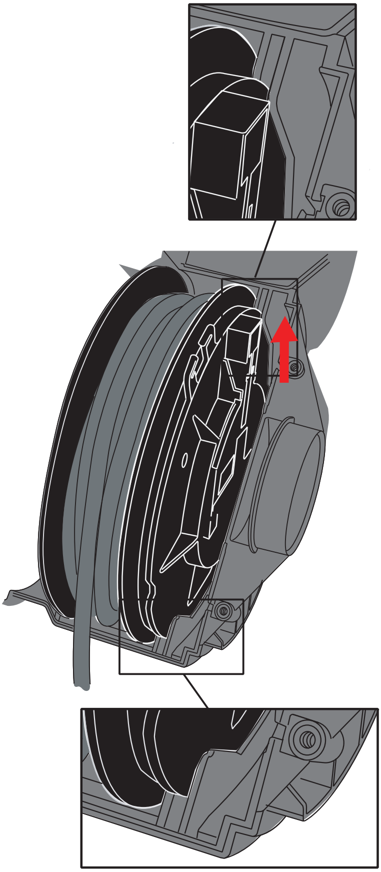
㉕ Connect the motor wires to the wiring harness. Lower the motor into the motor bucket. Ensure the motor mount locates into the detail in the end of the motor bucket.



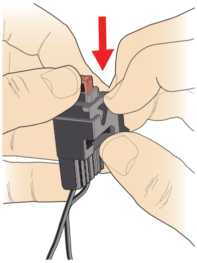
㉖ Refit the fancase seal onto the base of the motor.



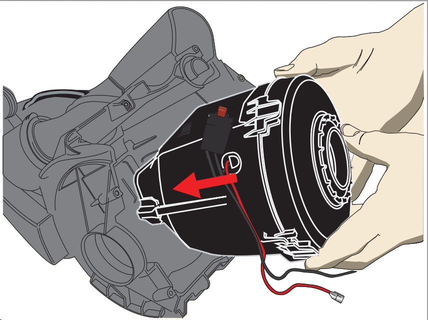
㉗ Align the motor bucket top with the motor bucket so the arrow points towards the wiring harness grommet. Firmly clip the motor bucket top onto the motor bucket. Ensure the detail on the fancase seal protrudes fully through the motor bucket top.



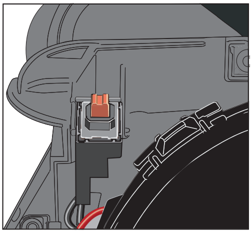
㉘ Locate the cable rewind assembly ensuring it sits within the LMC as shown. When fitted correctly the brake actuator will point directly upwards.



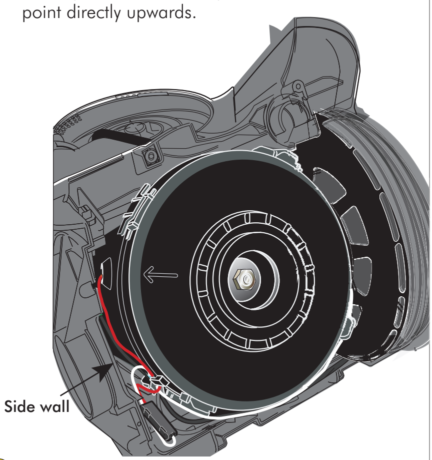
㉙ Locate the black wires from the cable rewind and motor bucket through the switch holder and attach to the switch. Clip the switch into the holder.



㉚ Lower the motor bucket into the LMC ensuring the lugs on the motor bucket mount locate into the channels provided.

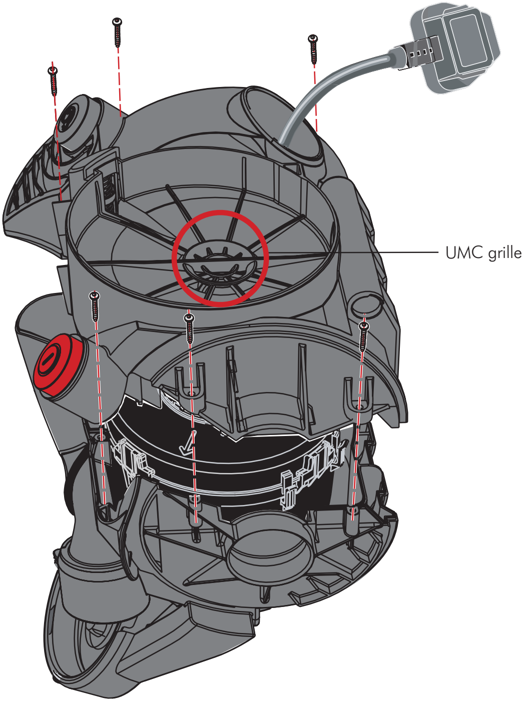


㉛ Position the switch holder into the LMC assembly. When positioned correctly the switch button will point directly upwards.

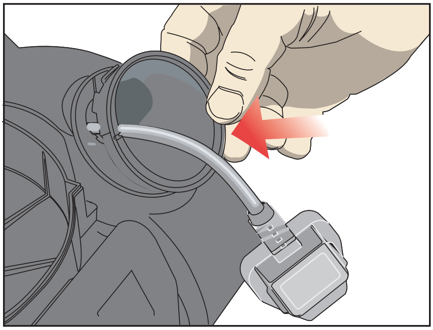


㉜ Attach the red and white together and refit the negative insulator. Neatly dress all wires into the clips around the side of the motor bucket. Locate the negative insulator into the corner of the LMC assembly.

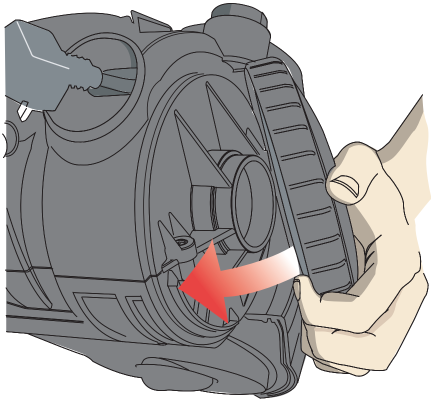
⚠ **Important:** ensure all wires are free from the side wall of the LMC assembly. Failure to ensure this could result in trapped wires.



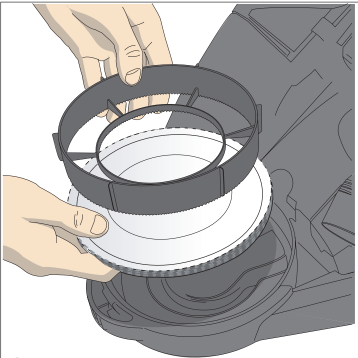
33 Locate the cable through the UMC. Position the LMC vertically. Locate the UMC onto it ensuring that the UMC grille is seated centrally to the fancase seal. Refit the 6 screws.



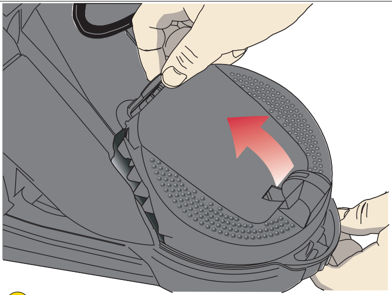
34 Open the cable collar and fit over the cable. Locate the collar into the LMC. Firmly clip into place.



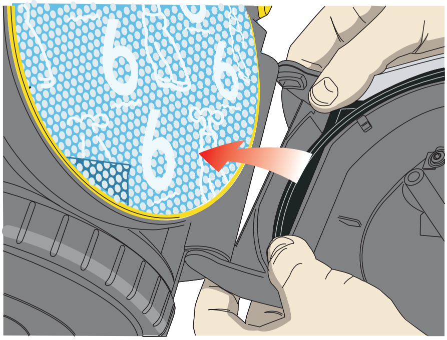
35 Firmly press the wheels onto the side of the product.



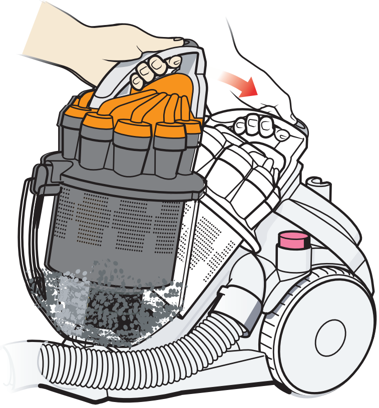
㊱ Refit the post filter as shown, ensuring that the filter scrim is positioned with the 'teeth' down (pad filter only).



㊲ Carefully place the post-filter cover into the 2 locating points at the front of the machine and then firmly clip the rear onto the LMC assembly.



㊳ Refit the pre-filter assembly into the top of the UMC. Clip the pre-filter cover into the hinge points on the rear of the UMC. Clip the pre-filter cover catch over the retainer on the front of the UMC.

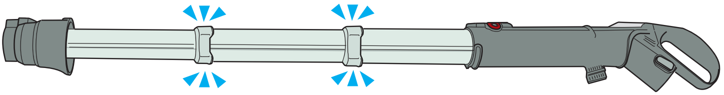


㊴ Place the end of the hose assembly into the cyclone inlet. Clip the hose retainer onto the front of the product. Clip the cyclone and bin assembly onto the machine.

Symptom: Loss of suction/pick up

Possible cause	Image No.	Action
Brushbar not spinning (DC20 only)	1	Ensure telescopic wand is fully extended in use. Check telescopic wand for air leakage. If leakage is found, replace telescopic wand
	2	Remove soleplate from floor tool and inspect for blockages around brushbar, and in airway. Check bristles for wear. Ensure plunger is set to 'Carpet' mode - out
	3	Check soleplate for air leakage. Ensure catch is fastened correctly
Airway blocked		Remove wand handle from hose and check for blockages
	4	Remove hose from inlet and check both areas for blockages
Displaced/missing seals	5	Remove cyclone top/bin assembly and check exhaust seal is correctly fitted
	6	Remove cyclone assembly from bin assembly. Check bin seal is correctly fitted
Blocked pre-filter		Inspect pre-filter assembly for blockages. If the filter is blocked with large debris, check Fine Dust Collector (FDC) seal
Displaced/missing seals	7	Check pre-filter seal is fitted correctly
	8	Remove UMC from LMC. Check fancase seal is seated correctly into motor bucket top
Air leakage	9	Check bleed valve for blockages
Motor failure		Check motor

1



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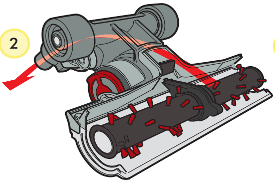

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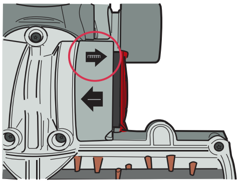

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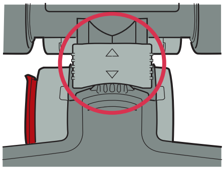

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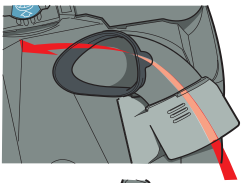

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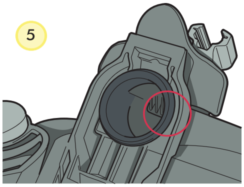

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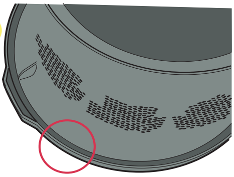

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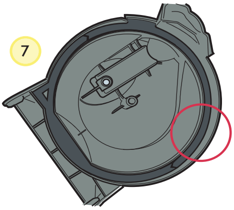

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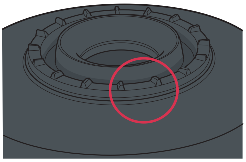

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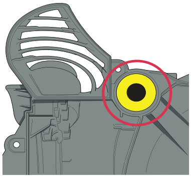
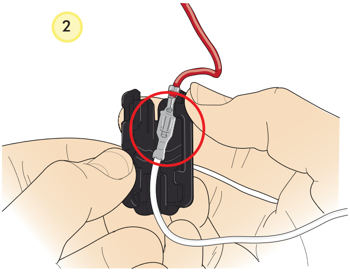


Symptom: No power

Possible cause	Image No.	Action
Socket wiring fault		Check customer's plug socket - field service only (refer to technical section)
Faulty fuse	1	Check fuse for correct rating - UK only (13amp). Test resistance, (1Ω max.)
Open circuit across cable rewind		Visual check of mains cable, plug and fly leads. Test resistance, (1Ω max.)
Loose connection between cable reel & wiring harness	2	Check connections. Test resistance, (1Ω max.)
Faulty switch	3	Check connections onto switch. Test actuation and resistance, (1Ω max.)
Poor connection to motor	4	Check connections between the wiring harness and motor. Test resistance, (1Ω max.)
Open circuit across motor	5	Test resistance, (7Ω approx.) Check motor (terminal clips, soldered connections, brushes, windings, thermal cut-out)

1

2



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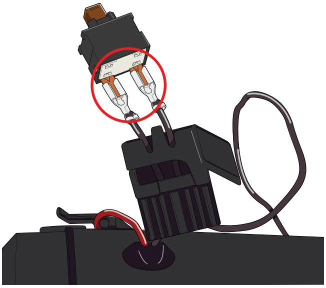

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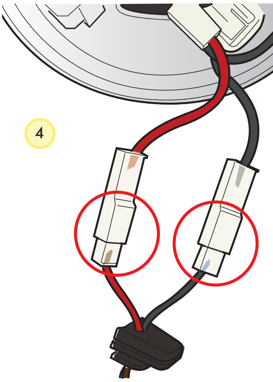

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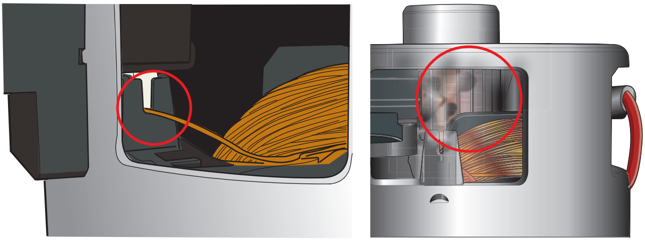


Symptom: Burning smell

Possible cause	Image No.	Action
Broken/worn belt (DC20 only)		Replace Turbo head
Worn brushbar (DC20 only)		Check brushbar for obstructions, wear, incorrect fit - replace
Motor failure	1	Check post filter for carbon build up. Check motor (commutator, windings, brushes, carbon build-up)

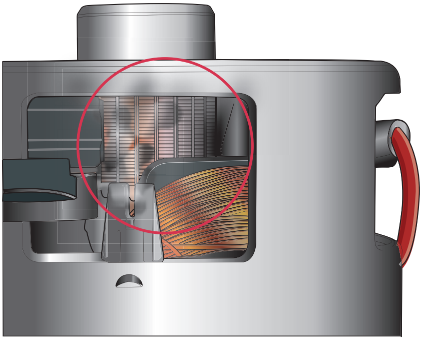
Symptom: Thermal cut-out activating

Possible cause	Image No.	Action
Restricted airflow		Check for blockages-see 'Loss of suction/pick up' page
Motor failure	1	Check motor (commutator, windings, carbon build-up, excess heat)

Symptom: Noisy

Possible cause	Image No.	Action
Air leakage		Check all seals and airways-see 'Loss of suction/pick up' page Check motor bucket seal for correct fit. Check post filter for blockages
Brushbar noise		Check brushbar for obstructions, wear, incorrect fit
Large object in bin		Empty bin
Motor failure	2	Check motor for loose impeller/nut/case, foreign objects in impeller, motor failure

1



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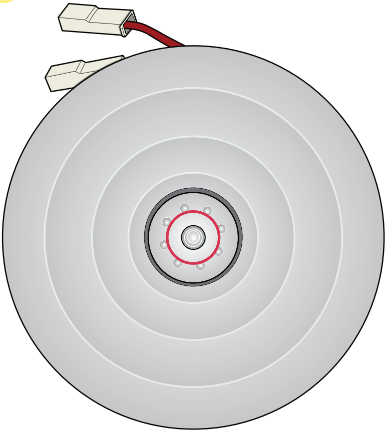
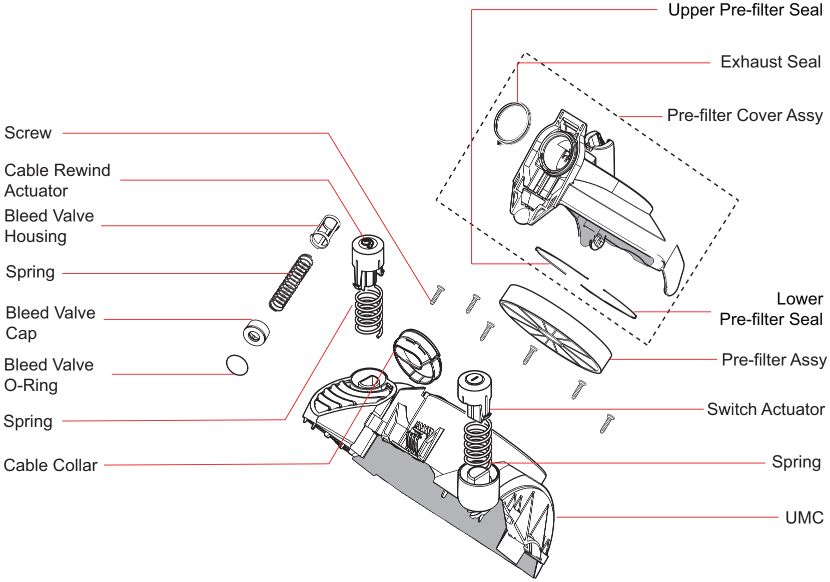
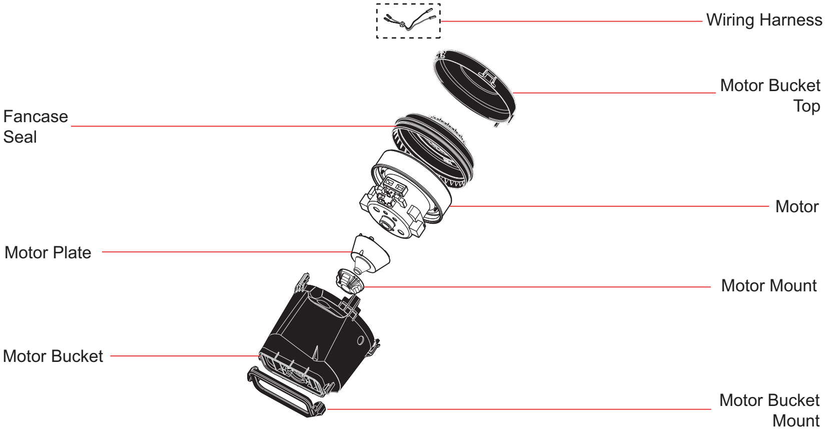


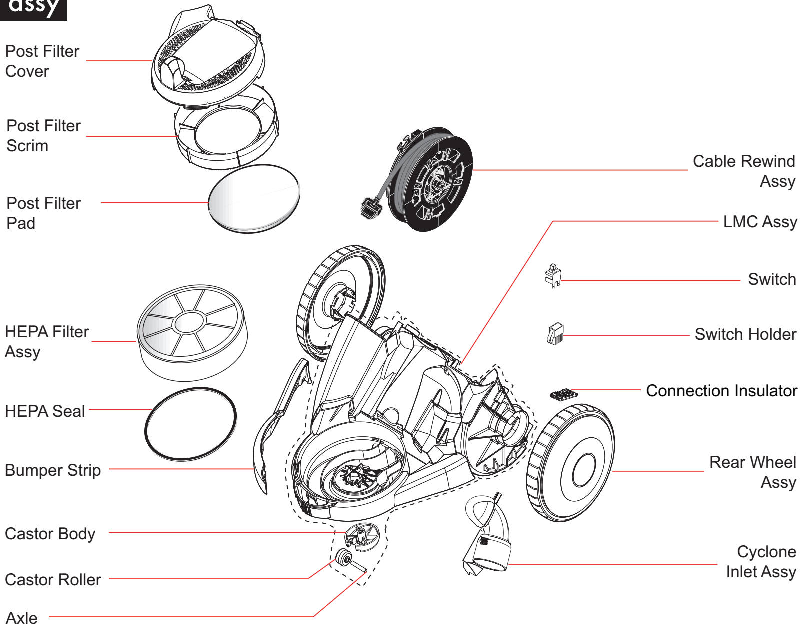
Pre-filter cover & UMC assy



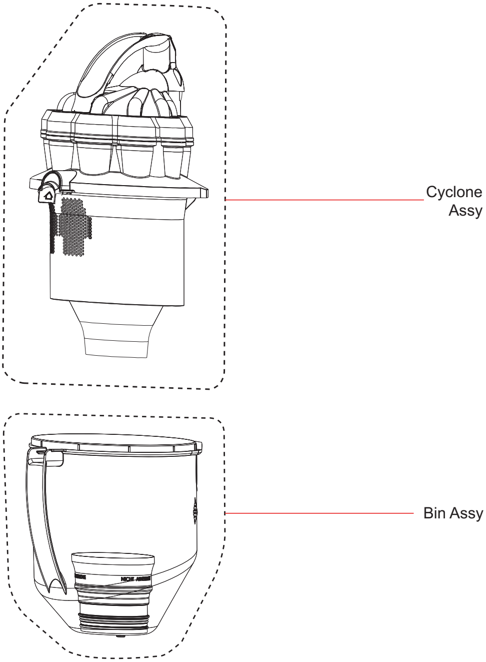
Motor assy



LMC assy



Cyclone & bin assy



Wand & hose assy